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# IRON AGE

THE MAGAZINE OF METALWORKING MANAGEMENT

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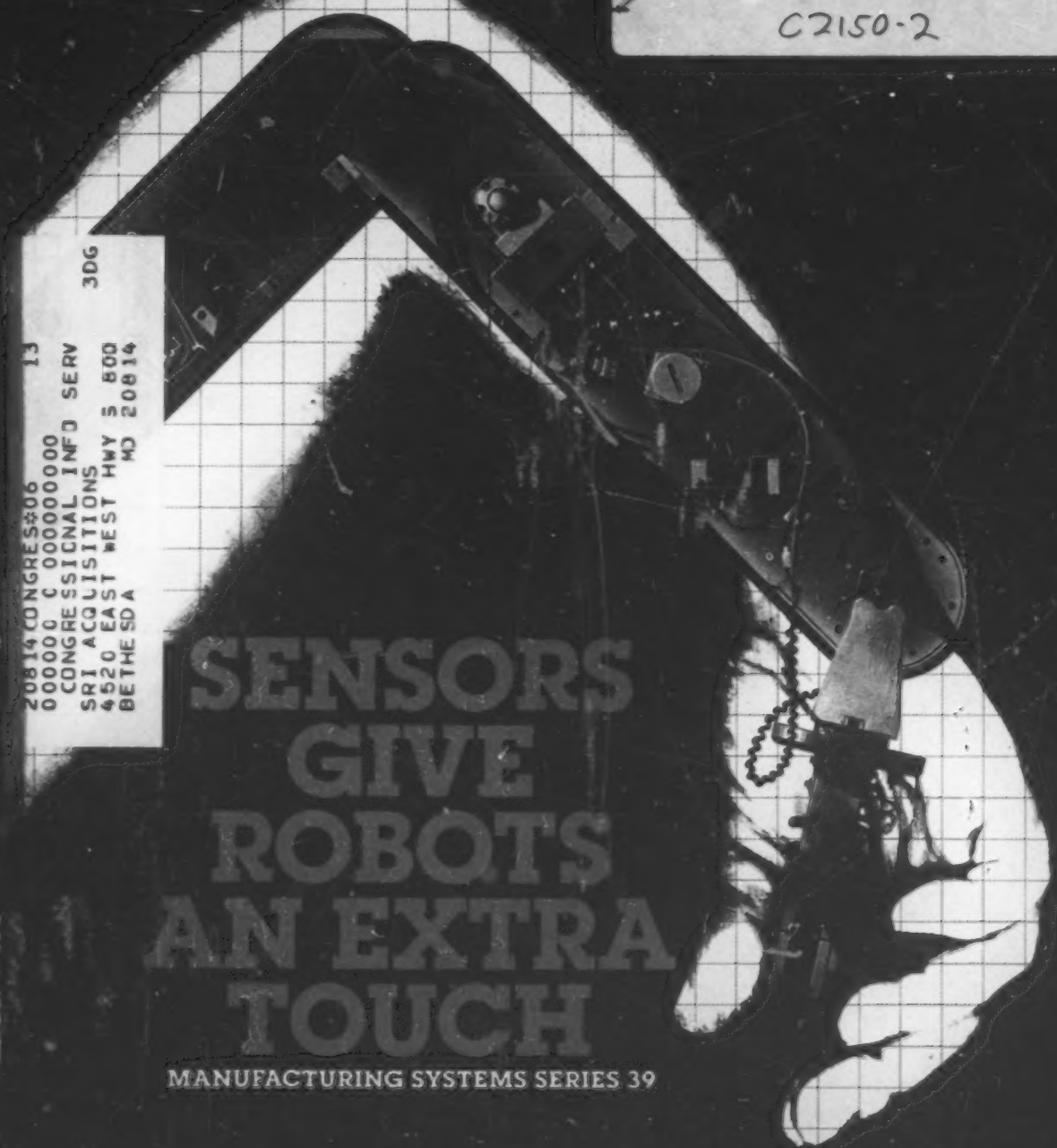

## SENSORS GIVE ROBOTS AN EXTRA TOUCH

MANUFACTURING SYSTEMS SERIES 39

VOL. 226, NO. 12

# IRON AGE

APRIL 22, 1983

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Robot arm courtesy of International Robomation/Intelligence

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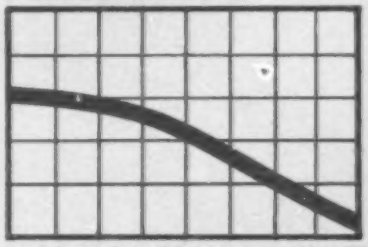

Annual steel financial analysis.

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# DEFENSE BUDGET IS UNDER SIEGE

**President Reagan's plans for a 10 pct increase in defense spending faces stiff opposition in the Congress and the business community.**

BY EDWIN W. BOWERS

This year is a bellwether for several major military projects. For many of these, 1983 is the year that, once they are started, it will be impossible to stop them.

That and other aspects of the Reagan Administration defense budget for Fiscal Year 1984, and beyond, translate into a lot of work—about $94 billion worth—for metalworking and related industries. Overall, the President is proposing spending of $283.6 billion for defense next year, 10 pct more than last.

As a controversial topic, defense spending has once again come to the fore, and the President is throwing the challenge to those who would pare it back. Anyone proposing cuts, he says, should be made to say what part he or she would eliminate.

"Approaching this subject with a meat ax is no way to do it," says Rep. Barry Goldwater (R., Ariz.). "Just to come out and say we are going to cut 7, 8 or 15 pct from the military budget without specifying exactly where is not the approach."

Some influential people and organizations are calling for defense spending cuts, but, as anticipated by the President, they are, indeed, not being specific.

A coalition of three major business groups has called for between $18 billion and $23 billion in defense budget cuts. The trio consists of the National Association of Manufacturers (NAM), American Business Conference and National Federation of Independent Business. They say about $5 billion could be saved by cancelling or postponing purchasing new weapons.

NAM President Bernard O'Keefe said the Pentagon wants too many weapons systems that are expensive. For example, he said, the country doesn't need and can't afford the MX missile.

"Why not cut 5 pct from the defense budget?" Chrysler Corp. Chairman Lee Iacocca asks rhetorically. "A five pct cut would save $15 billion."

"I think we can automatically cut the budget by spending wisely," says Donald Greenbury, president of Arrowsmith Tool & Die, Southfield, Mich. He is also president of the National Tooling and Machining Association.

Mr. Greenbury and his association part company with the other three business groups that are opposing the increased defense outlays. "We are not for cutting defense spending," he says. "We support the President's method, increasing it slowly and methodically."

The White House has proposed a succession of increases for Fiscal Years 1984 through 1988. The Administration's plan would increase real, inflation adjusted, budget authority for defense spending by about 6.9 pct annually for those years.

Defense spending clearly influences some sectors of the economy more than others. More than 10 pct of the output in the aerospace, ordnance, shipbuilding and electrical equipment industries is the result of defense spending. The Congressional Budget Office says that under the Reagan plan, after adjustment for inflation, median annual growth for calendar years 1983 to 1985 could be 7.5 pct in the 100 small industries most involved in defense production.

Interestingly, while spending is up and the total number of specific weapons will be increased, the President has scaled down number of units from last year's long-range budget proposal. "Since we took office," says Defense Secretary Caspar Weinberger, more than 100 marginal weapons or equipment programs have been eliminated, reduced or merged."

The White House is calling for 702 additional aircraft in Fiscal '84, but this is 93 fewer than originally proposed. The President has cut back by 360 the number of M-1 tanks to be built this year. The current shipbuilding plan for 1984 proposes four fewer ships for new construction than were proposed in last year's plan. The budget for shipbuilding and conversion has been reduced to

$12.7 billion in Fiscal '84 from $16.2 billion the previous year.

"We expect that to stay pretty stable," says Edwin Hood, president of the Shipbuilders' Council of America. "This is because basically we're talking about jobs and the emphasis by the Administration at this moment is on jobs."

Rep. Jack Edwards (R., Ala.) points out that much of the funding in the Fiscal '84 budget relates to long-term projects, spanning the '83 procurement and going beyond 1984. "Thirty-five pct of that outlay budget comes from prior year appropriations," he points out.

"So," he adds, "if we are going to make any cuts in that area, what we would be doing would be reversing decisions made in prior years having to do with major weapons systems." This would include cutting out two aircraft carriers and the procurement money for the B-1 bomber voted last year.

"Having started in motion the procurement of systems that we need so desperately in this country," he says, "I think the Congress clearly would want to think a long time before it now reverses itself and moves in other directions."

Over the next five years, the White House is calling for spending about $663 billion for weapons, most of the amount for fewer than 50 high cost items.

Litton Industries, the nation's 15th largest defense contractor, says the issue of defense spending must be viewed in the larger context. Rudolph Lang, vice president of the company's defense electronics group, says, "If we must weigh the importance of defense spending, we need to recognize its inter-relationship with other Federal programs and the total budget." He argues that "defense is not an isolated issue. This country needs both a strong defense and a strong economy, both as deterrents to outside interference in U.S. affairs."

In the initial defense budget battle on Capitol Hill, the House of Representatives voted not to increase defense spending by the 10 pct President Reagan has proposed. The legislators instead voted a 4 pct hike over Fiscal '83 spending. The President militantly insisted that the 10 pct increase he wanted was inviolate and that cutting it would put the nation in dire peril. He hoped at that time to find greater support in the Republican-dominated Senate.

In early April, Mr. Reagan met with Republican members of the Senate Budget Committee and clung stubbornly to his call for a 10 pct increase in defense spending.

But it appeared that support from his own party is severely lacking. Following the meeting Sen. Lawton Chiles (R., Fla.) said, "I think we're going to have to force compromises if the President is going to stay locked in on the numbers. The Congress is going to have to work its will."

**Top Defense Contractors Last Year**
**(millions of dollars)**

| | FY 1982 |
|---|---|
| General Dynamics | 5,891 |
| McDonnell Douglas | 5,630 |
| United Technologies | 4,208 |
| General Electric | 3,654 |
| Lockheed Corp. | 3,499 |
| Boeing Co. | 3,239 |
| Hughes Aircraft | 3,141 |
| Rockwell International | 2,691 |
| Raytheon | 2,262 |
| Martin Marietta | 2,008 |
| Grumman Corp. | 1,900 |
| Northrop Corp. | 1,596 |
| Westinghouse Electric | 1,492 |
| FMC Corp. | 1,371 |
| Litton Industries | 1,317 |

In the Senate, thus far, the President has fared no better than he did in the House. First, the Senate Budget Committee, by a vote of 19-2, rejected the President's military budget. Then, by a vote of 17-4, the committee approved a 5 pct increase in defense spending, half of what the President wanted.

Subsequent to the Senate actions, Mr. Reagan sent word to Capitol Hill that he would be willing to compromise. This angered several GOP members of the committee. If Mr. Reagan had come down from the 10 pct increase he clung so strenuously to earlier, they could have voted for the lesser figure and been seen as voting with the President instead of against him. Eight Republicans voted for the 5 pct hike including Committee Chairman Pete Domenici of New Mexico.

Mr. Reagan was asking for defense spending in the $280 billion range; the Senate Budget Committee voted for a $267 billion outlay. The committee did not say how the Defense Department should accommodate the shortfall.

Economists and legislators opposing the defense budget contend that the nation is in for a heavy tax burden if the White House proposals pass as designed. "If you insist on this level of defense spending you will have to have a tax increase of between $50 billion to $100 billion by 1988," says Brookings Institution economist Joseph A. Pechman.

According to a Brookings study, the current budget "not only has failed to reduce Federal spending, it has substantially increased it."

Mr. Pechman says the pace of the increases in expenditures on national defense, the significant reductions in non-defense spending and the size and form of the tax reductions fashioned by Congress are "fiscally inconsistent."

That position is strongly supported by a potentially powerful coalition of 500 top U.S. business leaders. They have come out strongly against the proposed defense spending and are calling for $25 billion in cuts. Reversing President Reagan's argument that those who want to cut should be more specific, the executives assert: "In this time of severe fiscal strain, the Administration has a duty to justify massive defense programs."

Deficits of the size the Reagan Administration is talking about, says Cincinnati Milacron CEO James A. D. Geier, would abort economic recovery and render any steady expansion in our defense capability politically as well as economically unsustainable.

"Military strength is not possible without enduring economic strength," says Scovill CEO William F. Andrews. "And neither of those can be main-

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## Where Most of the Defense Money Would Go—Fiscal Year 1984

The proposed Fiscal Year 1984 procurement budget is $94.087 billion, an increase of $13.376 billion, or 16.6 pct over the $80.711 billion made available to date in Fiscal Year 1983. The increase for procurement again represents the largest dollar increase of any category in the new defense budget.

The following is a breakdown of new weapons proposed for each service branch:

*ARMY*—The Army consumes 20.4 pct of the Fiscal '84 procurement budget. Aircraft funding comes to $3.472 billion covering 206 vehicles including: 12 EH-60A Quick-fix helicopters, 112 AH-64 attack helicopters and 84 UH-60A Blackhawk helicopters.

Missiles—95 Pershing II missiles, 525 Patriot air defense missiles, 1,508 Stingers, 5,351 Laser Hellfire air-to-surface and 18,000 TOW antitank missiles.

The budget for weapons and tracked combat vehicles covers more than 3,000 tracked combat vehicles, 720 M-1 tanks and 600 Bradley fighting vehicles.

*NAVY*—The aircraft procurement budget is $11.127 billion. The total number of aircraft programmed is 281. This includes 6 A-SE and 6 EA-6B aircraft, 84 F-18 fighters, 24 F-14s, 11 CH-53E heavy lift helicopters, 21 SH-60B Seahawk copters, 5 P-3C Orion aircraft, 6 E-2C Hawkeye planes, 8 C-2 COD aircraft, and 38 T-34C trainers and 52 Trident missiles.

Shipbuilding and Conversion—The amount asked for is $12.698 billion. Covering a total of 32 ships including a Trident submarine, 3 SSN-688 attack submarines, 3 AEGIS cruisers, 1 LSD-41 landing ship, 1 LHD-1 amphibious assault ship, 4 minesweepers, 3 P-AO oilers, 9 strategic sealift vessels, 1 T-A hospital ship and 4 T-AKRX logistics ships.

*AIR FORCE*—This branch takes up the largest portion of the procurement budget, or $38.904 billion. It is hoped this will cover 312 aircraft including 10 B-1 bombers, 48 F-15s, 120 F-16s, 8 KC-10 tankers, 2 MC-130 planes, and 4 C-5B cargo planes.

Missiles—120 Cruise, 1,005 Sparrows, 1,700 Sidewinders, 2,600 Mavericks and 285 HARM missiles.

*MARINE CORPS*—A 7 pct decrease requested compared with FY '83—$1.852 billion. The funds will include 32 AV-8B B/STOL aircraft, 153 LVT-7 amphibious assault vessels, 113 light armored vehicles, 4[illegible] Hawk missiles, 706 Stingers and 2,200 TOW missiles.

tained if the Federal budget runs structural deficits in the range of 5 pct to 6 pct or more of the Gross National Product."

The executives, who have banded together as the "Bipartisan Budget Appeal" coalition, say the Reagan Administration, using increased Soviet spending as a justification for U.S. expenditures, "does not tell us how much to spend to counter that threat."

One place where the relationship between programs and viable goals does not appear adequately documented, they say, is in the area of unnecessary duplication or redundancy. There is a question, the coalition says, of whether the vast array of overlapping strategic forces is necessary.

"We do not question the need for strong and modern strategic bomber and missile forces," the coalition says. "The question is whether compelling arguments have yet been advanced in favor of all the procurement that the Administration has proposed."

"It is simply not plausible," says Lee L. Morgan, Caterpillar Tractor's CEO, "that in a budget of this vast size every dollar for defense spending is necessary to our survival as a nation."

The coalition, which also includes 65 former Cabinet officers and Presidential advisers, points out that "no nation can long maintain a strong foreign policy without a strong economy."

They call for a revised, multi-year defense budget plan that "builds on the progress already made and which is steady, coherent and has major bipartisan support."

The size and potential influence of the opposition indicates widespread concern that the White House proposals are not sustainable—economically—with current Federal revenues.

Another group, which includes three former cabinet officials under Democratic Presidents and a former chief of naval operations, claims that President Reagan's defense budget is unrealistic and should be cut substantially.

The group includes Robert McNamara, defense secretary under Presidents John Kennedy and Lyndon Johnson; McGeorge Bundy, national security adviser in those administrations; Cyrus Vance, a former Pentagon official and secretary of state under President Jimmy Carter, and Adm. Elmo Zumwalt, former chief of naval operations.

They propose $135.9 billion in defense cuts over the next five years. They say the reductions are necessary to reduce budget deficits, thereby strengthening the economy.

Mr. Vance says that if the Administration make the recommended cuts "it will be seen by our allies, friends and adversaries, not as a sign of weakness, but a sign of wisdom, determination and common sense."

In a letter to the Senate Budget Committee, the group said, "The economic foundations of our national security, which are every bit as important as the defense component, have been undermined."

They said huge deficits projected for future years must be cut in order to bring down longterm interest rates and allow sustained economic recovery.

The group proposes total cuts of $156.4 billion below Administration proposals from 1983 through 1988. At the same time, they advocate $20.5 billion for improvements in the National Guard and reserve forces and substitution of fast sea lift for additional airlift capacity. Thus, the net total reduction called for between 1983 and 1988 would be $135.9 billion.

Support for President Reagan's defense spending posture has come in the form of a classified Pentagon document proposing spending almost $2 trillion during the next five years to strengthen this country's defense position. The plan, drawn up by the highest civilian levels of the Pentagon, the Joint Chiefs of Staff and U.S. military commanders around the world, reflects Reagan Administration thinking about military policy and priorities for the rest of the decade.

A memo signed by Defense Secretary Weinberger says, "we must improve the flexibility of our forces to respond to an increasing number of possible missions that may be forced upon us by a world not of our making."

Called the "Fiscal Year, 1985-89, Defense Guidance Document," the pamphlet covers national security objectives, regional defense policies, strategy, resources and fiscal planning and project expenditures of $1.958 trillion through this decade.

The document emphasizes strengthening conventional U.S. forces in hopes that such a buildup might decrease the possibility of a prolonged nuclear war. It dwells heavily on upgrading the mobility and readiness of the military and its command and control facilities. □

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EFFECTIVE APRIL 11, 1983

# MATERIALS NEWSFRONT

## Important Notice About Iron Age Scrap Prices

Beginning with the Jan. 21 issue Iron Age has been publishing only one set of scrap prices per issue—those with the effective date as close to the issue date as printing schedules permit. Prices for other weeks are available on a weekly basis through our Metal Price Phone Hotline or through our Weekly Price Newsletter.

### Lake Superior Ore Prices

51.50% Fe Natural delivered lower Lake ports. Rail transportation, handling and unloading may be charged to the account of the buyer. Coarse ore 80¢ premium.

Pellets (per iron unit natural)..... gross-ton 80.50-86.9*
Old range, non-bessemer ..... gross-ton $32.78
Mesabi, regular-unscreened ..... gross-ton $32.53
Mesabi, non-bessemer.....gross-ton $32.25-32.53**

*80.50¢—Pickands Mather as of 1/27/81.
**86.9¢—U. S. Steel as of 3/15/82. Cleveland-Cliffs as of 2/26/82, Oglebay Norton as of 3/25/82, and Hanna Mining as of 2/26/82.

## Steel Production, Composite Prices

(Effective April 11, 1983)

| U.S. Steel Production | Last Week | Two Weeks Ago | To Date 1983 | To Date 1982 |
|---|---|---|---|---|
| Net tons, in thousands | 1,651 | 1,676 | 20,460 | 24,515 |
| Capability Utilization Rate | 57.1 | 58.0 | 49.9 | 58.8 |

| Composite Prices | This Week | Week Ago | Month Ago | Year Ago |
|---|---|---|---|---|
| Finished Steel Base* (¢/lb.—eff. 2/14/83) | 26.217 | 26.217 | 26.217 | 25.862 |
| Pig Iron* * (Net ton = 2000 lbs.) | $213.00 | $213.00 | $213.00 | $213.00 |
| Scrap No. 1 hvy.* * * (Gross ton = 2240 lbs.) | $ 71.17 | $ 71.17 | $ 72.83 | $ 75.50 |
| No. 2 bundles | $ 49.17 | $ 49.17 | $ 51.83 | $ 50.50 |
| **Scrap Comparison** (Gross Ton) | | | | |
| No. 1 steel, Pittsburgh | $ 75.50 | $ 75.50 | $ 77.50 | $ 85.50 |
| No. 1 steel, Philadelphia | 65.50 | 65.50 | 63.50 | 71.50 |
| No. 1 steel, Chicago | 72.50 | 72.50 | 77.50 | 69.50 |
| No. 1 bundles, Detroit | 75.50 | 75.50 | 76.50 | 73.50 |
| Low Phos., Youngstown | 69.50 | 69.50 | 69.50 | 86.50 |
| No. 1 mach'y cast., Pgh | 76.50 | 76.50 | 79.50 | 86.50 |
| No. 1 mach'y cast., Phila | 98.50 | 98.50 | 98.50 | 113.50 |
| No. 1 mach'y cast., Chi | 110.50 | 110.50 | 112.50 | 122.50 |

*Finished Steel Composite
Weighted index of steel bars, shapes, plates, wire, rails, black pipe, hot and cold rolled sheets and strips.
* *Pig Iron Composite
Based on average prices for basic and foundry pig iron at representative producing points within the U.S.
* * *Steel Scrap Composite
Average of No. 1 hvy. melting steel scrap and No. 2 bundles delivered to consumers at Pittsburgh, Philadelphia and Chicago.

## Nonferrous Prices

(Effective April 11, 1983)
Prices obtained in trade based on representative tonnages per gross ton delivered to consumer unless otherwise stated.

### Primary Metal Prices

| (cents per lb.) | current price | last price | date of change |
|---|---|---|---|
| Aluminum | 76.00 (Nom.) | 76.00-80.00 | 1/4/82 |
| Copper (C) | 78.50-80.00 | 80.00 | 4/8/83 |
| Lead | 21.00-23.00 | 20.50-23.00 | 3/30/83 |
| Magnesium Ingot | 134.00 | 125.00 | 6/1/81 |
| Nickel | 329.00 | 350.00 | 11/25/81 |
| Titanium Sponge | 555.00-585.00 | 555.00 | 4/29/82 |
| Zinc | 38.00 | 38.00-40.00 | 3/29/83 |

ALUMINUM: 99.5%. COPPER (C) = cathode. LEAD: common grade. MAGNESIUM: 99.8% pig, Velasco, Tex. NICKEL: electro., Port Colborne, Canada. ZINC: high grade.

Antimony, American Laredo, Texas .$2.00
Beryllium-aluminum 5% Be, per lb. contained Be.....$201.00
Beryllium-copper, per lb. cont. Be $130.00
Beryllium 97% powder 200.....$166.00
Bismuth, ton lots .....$1.55-$1.60
Cadmium, under one ton .....$1.05-$1.15
Calcium, ton lots, crown .....$3.05
Chromium, 99.8%.....$3.75
Cobalt, 99%, cathode.....$12.50
Gold per troy oz. .....$426.75
Indium, dollars per troy oz.....$3.10
Iridium, dollars per troy oz.....$600
Magnesium sticks, 10,000 lbs. .....$1.91
Mercury, per 76 lb. f.o.b. N.Y. ..$320-$335
Molybdenum, lb. tech. moly oxides, 20 lb. MO can.....$5.85
Nickel oxide sinter at U.S. points of entry .....$3.12
Palladium, per troy oz. .....$140
Platinum, per troy oz. .....$475
Rhodium, per troy oz. .....$600.00
Silver ingots, per troy oz.....$11.23
Vanadium .....$4.94
Zirconium sponge.....$12.00-$17.00
*(Per lb. unless otherwise noted)*

### Straits Tin Price

*(U.S. cents per lb, EX-SMELTER, based on daily market in Penang in Malaysian dollars per kilo.)*

Apr. 4—606.79 Apr. 7—621.49
Apr. 5—605.79 Apr. 8—631.38
Apr. 6—611.73

### Scrap Prices

#### Brass Mill Scrap

*(Cents per lb; over 20,000 lbs. add 1¢ per lb)*

| | Solids | Turning |
|---|---|---|
| Copper | 75½ | 66¼ |
| Yellow brass | 63⅜ | 61¼ |
| Red brass | 69¼ | 66⅛ |
| Comm. bronze | 70⅞ | 67¾ |
| Mang. bronze | 62¼ | 60½ |
| Free cutting rod ends | 59 | 58 |

#### Custom Smelters Scrap

*(Cents per lb., carload lots, del. refinery)*

| | |
|---|---|
| No. 1 copper wire | 69 |
| No. 2 copper wire | 60 |
| Light copper | 51 |

#### Ingot Makers Scrap

*(Cents per lb., carload lots, del. refinery)*

| | |
|---|---|
| No. 1 copper wire | 65 |
| No. 2 copper wire | 56 |
| Light copper | 47 |
| No. 1 composition | 53 |
| No. 1 comp. turnings | 49 |
| Hvy. yellow brass solids | 36 |
| Hvy. yellow brass turnings | 27 |
| Radiators | 43 |

*Aluminum*

| | | |
|---|---|---|
| New mixed clips | 34 | —35 |
| Old sheet | 32 | —33 |
| Old cast | 32 | —33 |
| Clean dry borings | 33 | —34 |

#### Dealers' Scrap

*(Dealers' buying price f.o.b. New York in cents per pound)*

**Aluminum**

| | | |
|---|---|---|
| Segregated clippings | 27 | —28 |
| Mixed L.C. clips | 24 | —25 |
| Old sheets and cast | 19 | —20 |
| Borings and turnings | 13 | —14 |
| Duraluminum clippings | 22 | —23 |

**Copper and Brass**

| | | |
|---|---|---|
| No. 1 copper wire | 58 | —59 |
| No. 2 copper wire | 51 | —52 |
| Light copper | 44 | —45 |
| Radiators | 37 | —38 |
| No. 1 composition | 46 | —47 |
| No. 1 composition turn'gs | 42 | —44 |
| Cocks and faucets | 32 | —33 |
| Clean heavy yellow brass | 31 | —32 |
| Brass Pipe | 31 | —32 |
| New soft brass clippings | 46 | —47 |

**Lead**

| | | |
|---|---|---|
| Heavy soft lead | 10 | —11 |
| Whole batteries | 4 | — 5 |
| Type metal | 15 | —16 |
| Electrotype | 17 | —18 |

**Nickel**

| | | |
|---|---|---|
| Nickel solids | 95 | —100 |
| Nickel rod ends | 95 | —100 |
| Nickel sheets, clips | 95 | —100 |
| Nickel turnings | 45 | — 50 |

**Zinc**

| | | |
|---|---|---|
| New zinc clippings | 15 | —16 |
| Old diecast zinc | 9 | —10 |

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EFFECTIVE APRIL 11, 1983

# MATERIALS NEWSFRONT

(Effective April 11, 1983) Prices obtained in trade based on representative tonnages per gross ton delivered to consumer unless otherwise stated. Prices are the opinions of *Iron Age* editors and correspondents, based on contacts with dealers, brokers, generators and users in the industry on the effective date listed above.

## Ferrous Scrap Prices

### Pittsburgh

| | | |
|---|---|---|
| No. 1 hvy. melting | $ 75.00 to | $ 76.00 |
| No. 2 hvy. melting | 65.00 to | 66.00 |
| No. 1 dealer bundles | 83.00 to | 84.00 |
| No. 1 factory bundles (auto) | 85.00 to | 86.00 |
| No. 2 bundles | 51.00 to | 52.00 |
| No. 1 busheling | 83.00 to | 84.00 |
| Machine shop turn. | 7.00 to | 8.00 |
| Shoveling turnings | 31.00 to | 32.00 |
| Cast iron borings | 30.00 to | 31.00 |
| Low phos. punchings plate | 91.00 to | 92.00 |
| Heavy turnings | 65.00 to | 66.00 |
| No. 1 RR hvy. melting | 85.00 to | 86.00 |
| Rails 2 ft. and under | 96.00 to | 97.00 |
| Scrap rails, random lgth. | 88.00 to | 89.00 |
| RR specialties | 93.00 to | 94.00 |
| No. 1 machinery cast | 76.00 to | 77.00 |
| Cupola cast | 69.00 to | 70.00 |
| Heavy breakable cast | 30.00 to | 31.00 |
| Stainless | | |
| 18-8 bundles and solids | 580.00 to | 590.00 |
| 18-8 turnings | 480.00 to | 490.00 |

### Chicago

| | | |
|---|---|---|
| No. 1 hvy. melting | $ 72.00 to | $ 73.00 |
| No. 2 hvy. melting | 61.00 to | 62.00 |
| No. 1 dealer bundles | 84.00 to | 85.00 |
| No. 1 factory bundles (auto) | 85.00 to | 86.00 |
| No. 2 dealer bundles | 49.00 to | 50.00 |
| No. 1 busheling | 80.00 to | 81.00 |
| Shredder scrap | 75.00 to | 76.00 |
| Machine shop turn. | 17.00 to | 18.00 |
| Mixed bor. and turn. | 18.00 to | 19.00 |
| Shoveling turnings | 24.00 to | 25.00 |
| Cast iron borings | 40.00 to | 41.00 |
| Low phos. forge crop | 89.00 to | 90.00 |
| Low phos. punchings plate ¼ in. and heavier | 96.00 to | 97.00 |
| Low phos. 2 ft. and under | 90.00 to | 91.00 |
| No. 1 RR hvy. melting | 79.00 to | 80.00 |
| Scrap rails, random lgth. | 71.00 to | 72.00 |
| Reroller rails | 96.00 to | 97.00 |
| Rails, 2 ft. and under | 93.00 to | 94.00 |
| RR couplers and knuckles | 81.00 to | 82.00 |
| RR car axles | 104.00 to | 105.00 |
| No. 1 machinery cast | 110.00 to | 111.00 |
| Cupola cast | 95.00 to | 96.00 |
| Stove plate | 94.00 to | 95.00 |
| Steel car wheels | 82.00 to | 83.00 |
| Stainless | | |
| 18-8 bundles and solids | 530.00 to | 540.00 |
| 18-8 turnings | 430.00 to | 440.00 |
| 430 bundles and solids | 135.00 to | 140.00 |
| 430 turnings | 100.00 to | 105.00 |

### Philadelphia

| | | |
|---|---|---|
| No. 1 hvy. melting | $ 64.00 to | $ 67.00 |
| No. 2 hvy. melting | 54.00 to | 57.00 |
| No. 1 dealer bundles | 77.00 to | 80.00 |
| No. 2 dealer bundles | 45.00 to | 48.00 |
| No. 1 busheling | 77.00 to | 80.00 |
| Shredder scrap | 76.00 to | 79.00 |
| Machine shop turn. | 23.00 to | 26.00 |
| Mixed bor. and turn. | 23.00 to | 26.00 |
| Shoveling turnings | 43.00 to | 46.00 |
| Low phos. 5 ft. and under | 77.00 to | 80.00 |
| Low phos. 2 ft. punchings | 91.00 to | 94.00 |
| Electric furnace bundles | 95.00 to | 98.00 |
| RR specialties | 80.00 to | 83.00 |
| Rails, 2 ft. and under | 93.00 to | 96.00 |
| Cupola cast | 60.00 to | 63.00 |
| Heavy breakable cast | 53.00 to | 56.00 |
| No. 1 machinery cast | 97.00 to | 100.00 |

### Detroit

Broker buying prices per gross ton on cars:

| | | |
|---|---|---|
| No. 1 hvy. melting | $ 49.00 to | $ 50.00 |
| No. 2 hvy. melting | 47.00 to | 48.00 |
| No. 1 dealer bundles | 75.00 to | 76.00 |
| No. 2 bundles | 28.00 to | 29.00 |
| No. 1 busheling | 72.00 to | 73.00 |
| Drop forge flashings | 44.00 to | 45.00 |
| Machine shop turn. | 27.00 to | 28.00 |
| Mixed borings and turn. | 13.00 to | 14.00 |
| Shoveling turnings | 27.00 to | 28.00 |
| Cast iron borings | 13.00 to | 14.00 |
| Heavy breakable cast | 32.00 to | 33.00 |
| Mixed cupola cast | 48.00 to | 49.00 |
| Automobile cast | 71.00 to | 72.00 |
| Stainless | | |
| 18-8 bundles and solids | 480.00 to | 490.00 |
| 18-8 turnings | 360.00 to | 370.00 |
| 430 bundles and solids | 120.00 to | 130.00 |

### Youngstown

| | | |
|---|---|---|
| No. 1 hvy. melting | $ 62.00 to | $ 63.00 |
| No. 2 hvy. melting | 54.00 to | 55.00 |
| No. 1 dealer bundles | 74.00 to | 75.00 |
| No. 2 dealer bundles | 39.00 to | 40.00 |
| Machine shop turn. | 2.00 to | 3.00 |
| Shoveling turnings | 7.00 to | 8.00 |
| Low phos. plate | 69.00 to | 70.00 |
| Electric furnace bundles | 70.00 to | 71.00 |
| Galvanized bundles | 60.00 to | 61.00 |

### Cleveland

| | | |
|---|---|---|
| No. 1 hvy. melting | $ 64.00 to | $ 65.00 |
| No. 2 hvy. melting | 29.00 to | 30.00 |
| No. 1 dealer bundles | 74.00 to | 75.00 |
| No. 1 factory bundles | 81.00 to | 82.00 |
| No. 2 bundles | 24.00 to | 25.00 |
| No. 1 busheling | 74.00 to | 75.00 |
| Machine shop turn. | 2.00 to | 3.00 |
| Mixed bor. and turn. | 2.00 to | 3.00 |
| Shoveling turnings | 5.00 to | 6.00 |
| Cast iron borings | 5.00 to | 6.00 |
| Cut structural & plates, 2 ft. and under | 92.00 to | 93.00 |
| Low phos. punchings plate | 92.00 to | 93.00 |
| Drop forge flashings | 33.00 to | 34.00 |
| Foundry steel, 2 ft. & under | 59.00 to | 60.00 |
| No. 1 RR hvy melting | 63.00 to | 64.00 |
| Rails, 2 ft. and under | 96.00 to | 97.00 |
| Rails, 18 in. and under | 97.00 to | 98.00 |
| Steel axle turnings | 69.00 to | 70.00 |
| Railroad cast | 82.00 to | 83.00 |
| No. 1 machinery cast | 89.00 to | 90.00 |
| Cupola cast | 62.00 to | 63.00 |
| Stove plate | 47.00 to | 48.00 |
| Stainless | | |
| 18-8 bundles | 275.00 to | 285.00 |
| 18-8 turnings | 225.00 to | 235.00 |
| 430 bundles | 75.00 to | 85.00 |

### Buffalo

| | | |
|---|---|---|
| No. 1 hvy. melting | $ 33.00 to | $ 34.00 |
| No. 2 hvy. melting | 23.00 to | 24.00 |
| No. 1 busheling | 38.00 to | 39.00 |
| No. 1 dealer bundles | 36.00 to | 38.00 |
| No. [illegible] | 20.00 to | 21.00 |
| Machine [illegible] | 9.00 to | 10.00 |
| Mixed bor. and turn. | 16.00 to | 17.00 |
| Shoveling turnings | 18.00 to | 19.00 |
| Cast iron borings | 15.00 to | 16.00 |
| Low phos. plate | 56.00 to | 57.00 |
| Structural and plate, 2 ft. and under | 54.00 to | 55.00 |
| Rails, 2 ft. and under | 50.00 to | 51.00 |
| Scrap rails, random lgth. | 30.00 to | 31.00 |
| No. 1 machinery cast | 71.00 to | 72.00 |
| No. 1 cupola cast | 48.00 to | 49.00 |

### St. Louis

| | | |
|---|---|---|
| No. 1 hvy. melting | $ 61.00 to | $ 62.00 |
| No. 2 hvy. melting | 50.00 to | 51.00 |
| Foundry steel, 2 ft. | 50.00 to | 51.00 |
| No. 1 dealer bundles | 61.00 to | 62.00 |
| No. 2 bundles | 47.00 to | 48.00 |
| Machine shop turn. | 12.00 to | 13.00 |
| Shoveling turnings | 18.00 to | 19.00 |
| Cast iron borings | 30.00 to | 31.00 |
| No. 1 RR hvy. melting | 61.00 to | 62.00 |
| Rails, random length | 61.00 to | 62.00 |
| Rails, 18 in. and under | 76.00 to | 77.00 |
| RR specialties | 80.00 to | 81.00 |
| Cupola cast | 70.00 to | 71.00 |
| Heavy breakable cast | 48.00 to | 49.00 |
| Stove plate | 82.00 to | 83.00 |
| Cast iron car wheels | 49.00 to | 50.00 |
| Rerolling rails | 96.00 to | 97.00 |
| Unstripped motor blocks | 55.00 to | 56.00 |

### Birmingham

| | | |
|---|---|---|
| No. 1 heavy melting | $ 64.00 to | $ 65.00 |
| No. 2 heavy melting | 59.00 to | 60.00 |
| No. 1 dealer bundles | 64.00 to | 65.00 |
| No. 2 bundles | 45.00 to | 46.00 |
| No. 1 busheling | 64.00 to | 65.00 |
| Shredder scrap | 77.00 to | 78.00 |
| Machine shop. turn. | 24.00 to | 25.00 |
| Shoveling turnings | 35.00 to | 36.00 |
| Cast iron borings | 35.00 to | 36.00 |
| Electric furnace bundles | 64.00 to | 65.00 |
| Elec. furnace, 3 ft. & under | 59.00 to | 60.00 |
| Structural and plate, 2 ft. | 78.00 to | 79.00 |
| Structural and plate, 4 ft. | 76.00 to | 77.00 |
| No. 1 RR hvy. melting | 63.00 to | 64.00 |
| Scrap rails, random lgth. | 63.00 to | 64.00 |
| Rails, 18 in. and under | 82.00 to | 83.00 |
| Angles and splice bars | 76.00 to | 77.00 |
| No. 1 cupola cast | 83.00 to | 84.00 |
| Unstripped motor blocks | 57.00 to | 58.00 |

### Cincinnati

Brokers buying prices per gross ton on cars:

| | | |
|---|---|---|
| No. 1 hvy. melting | $ 51.00 to | $ 52.00 |
| No. 2 hvy. melting | 48.00 to | 49.00 |
| No. 1 dealer bundles | 57.00 to | 58.00 |
| No. 2 bundles | 30.00 to | 31.00 |
| Machine shop turn. | 6.00 to | 7.00 |
| Shoveling turnings | 10.00 to | 11.00 |
| Cast iron borings | 11.00 to | 12.00 |
| Low phos. 18 in. and under | 78.00 to | 79.00 |
| Rails, random length | 60.00 to | 61.00 |
| Rails, 2 ft. and under | 82.00 to | 83.00 |
| No. 1 cupola cast | 65.00 to | 66.00 |
| Heavy breakable cast | 29.00 to | 30.00 |
| Drop broken cast | 69.00 to | 70.00 |

### New York

Brokers buying prices per gross ton on cars:

| | | |
|---|---|---|
| No. 1 hvy. melting | $ 34.00 to | $ 35.00 |
| No. 2 hvy. melting | 30.00 to | 32.00 |
| No. 2 dealer bundles | 22.00 to | 23.00 |
| Mixed bor. and turn. | 7.00 to | 8.00 |
| Machine shop turn. | 4.00 to | 5.00 |
| Shoveling turnings | 10.00 to | 12.00 |
| Clean cast. chem. borings | 34.00 to | 35.00 |
| No. 1 machinery cast | 89.00 to | 90.00 |
| Mixed yard cast | 38.00 to | 39.00 |
| Heavy breakable cast | 14.00 to | 15.00 |
| Stainless | | |
| 18-8 prepared solids | 480.00 to | 500.00 |
| 18-8 turnings | 375.00 to | 390.00 |
| 430 prepared solids | 70.00 to | 80.00 |
| 410 solids | 60.00 to | 70.00 |

### Boston

Brokers buying prices per gross ton on cars:

| | | |
|---|---|---|
| No. 1 hvy. melting | $ 38.00 to | $ 40.00 |
| No. 2 hvy. melting | 28.00 to | 30.00 |
| No. 1 dealer bundles | 40.00 to | 42.00 |
| No. 2 bundles | 29.00 to | 31.00 |
| No. 1 busheling | 40.00 to | 42.00 |
| Shredder scrap | 43.00 to | 45.00 |
| Machine shop turn. | 3.00 to | 5.00 |
| Shoveling turnings | 7.00 to | 9.00 |
| No. 1 machinery cast | 105.00 to | 110.00 |
| Mixed cupola cast | 28.00 to | 30.00 |
| Heavy breakable cast | 8.00 to | 10.00 |

### San Francisco

| | | |
|---|---|---|
| No. 1 hvy. melting | $ 43.00 to | $ 45.00 |
| No. 2 hvy. melting | 35.00 to | 37.00 |
| No. 1 dealer bundles | 30.00 to | 32.00 |
| No. 2 dealer bundles | 14.00 to | 16.00 |
| Machine shop turn. | 6.00 to | 8.00 |
| Cast iron borings | 6.00 to | 8.00 |
| No. 1 cupola cast | 85.00 to | 87.00 |

### Los Angeles

| | | |
|---|---|---|
| No. 1 hvy. melting | $ 42.00 to | $ 44.00 |
| No. 2 hvy. melting | 31.00 to | 33.00 |
| No. 1 dealer bundles | 29.00 to | 31.00 |
| No. 2 dealer bundles | 11.00 to | 13.00 |
| Machine shop turn. | 6.00 to | 8.00 |
| Shoveling turnings | 10.00 to | 12.00 |
| Cast iron borings | 6.00 to | 8.00 |
| Elec. furnace, 1 ft. and under (foundry) | 86.00 to | 88.00 |
| No. 1 cupola cast | 88.00 to | 90.00 |

### Seattle

| | | |
|---|---|---|
| No. 1 hvy. melting | $ 60.00 to | $ 62.00 |
| No. 2 hvy. melting | 49.00 to | 51.00 |
| No. 2 bundles | 38.00 to | 40.00 |
| No. 1 cupola cast | 94.00 to | 96.00 |
| Mixed yard cast | 81.00 to | 83.00 |

### Hamilton, Ont.

Brokers buying price per net ton on cars:

| | |
|---|---|
| No. 1 heavy melting | $ 55.00 |
| No. 2 heavy melting cut 2 ft. and under | 52.00 |
| No. 1 dealer bundles | 60.00 |
| No. 2 bundles | 30.00 |
| Mixed steel scrap | 34.00 |
| Bush. new fact. prep'd. | 58.00 |
| Bush. new fact. unprp'd. | 50.00 |
| Machine shop turn. | 25.00 |
| Short steel turn. | 28.00 |
| Mixed bor. and turn. | 15.00 |
| Cast scrap | 48.00 |

### Houston

Brokers buying prices per gross ton on cars:

| | | |
|---|---|---|
| No. 1 hvy. melting | $ 69.00 to | $ 70.00 |
| No. 2 hvy. melting | 53.00 to | 55.00 |
| No. 2 bundles | 36.00 to | 38.00 |
| Machine shop turn. | 20.00 to | 21.00 |
| Crushed turnings | 36.00 to | 38.00 |
| Shredder scrap | 69.00 to | 70.00 |
| Cut structural plate 2 ft. and under | 86.00 to | 88.00 |
| Unstripped motor blocks | 60.00 to | 62.00 |
| Cupola cast | 72.00 to | 74.00 |